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IMAGING IN INTENSIVE CARE MEDICINE

The accidental discovery of a tracheal diverticulum

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An 83-year-old female with a medical history of hypertension, apical aneurysm secondary to previous inferior-septal myocardial infarction, mitral and tricuspidal valve insufficiency, severe pulmonary hypertension and COPD was admitted to the ICU for acute respiratory distress and oliguria. Non-invasive positive pressure ventilation was started in the pneumology department, but, due to a worsening of her ventilation parameters, an endotracheal (ET) intubation and a cleaning bronchoscopy were performed. Following those manoeuvres, a sudden development of face, neck and thorax emphysema was observed. A CT scan showed a pneumomediastinum (Fig. 1a, b). Because of a doubt about a possible tracheal laceration, another bronchoscopy was performed (Fig. 1c), which showed an area of laxity of the pars membranacea. No clear signs of perforation were observed. Under bronchoscopy, the tip of the ET was positioned over the observed tracheal defect, just across the tracheal carena. The ET stayed in place for 7 days, when another bronchoscopy (Fig. 1d) was performed and, using methylene blue, the presence of a tracheal-acquired diverticulum was confirmed, while excluding a tracheo-oesophageal fistula. On day 10, the patient was extubated. She had never undergone a general anaesthesia procedure before this event.

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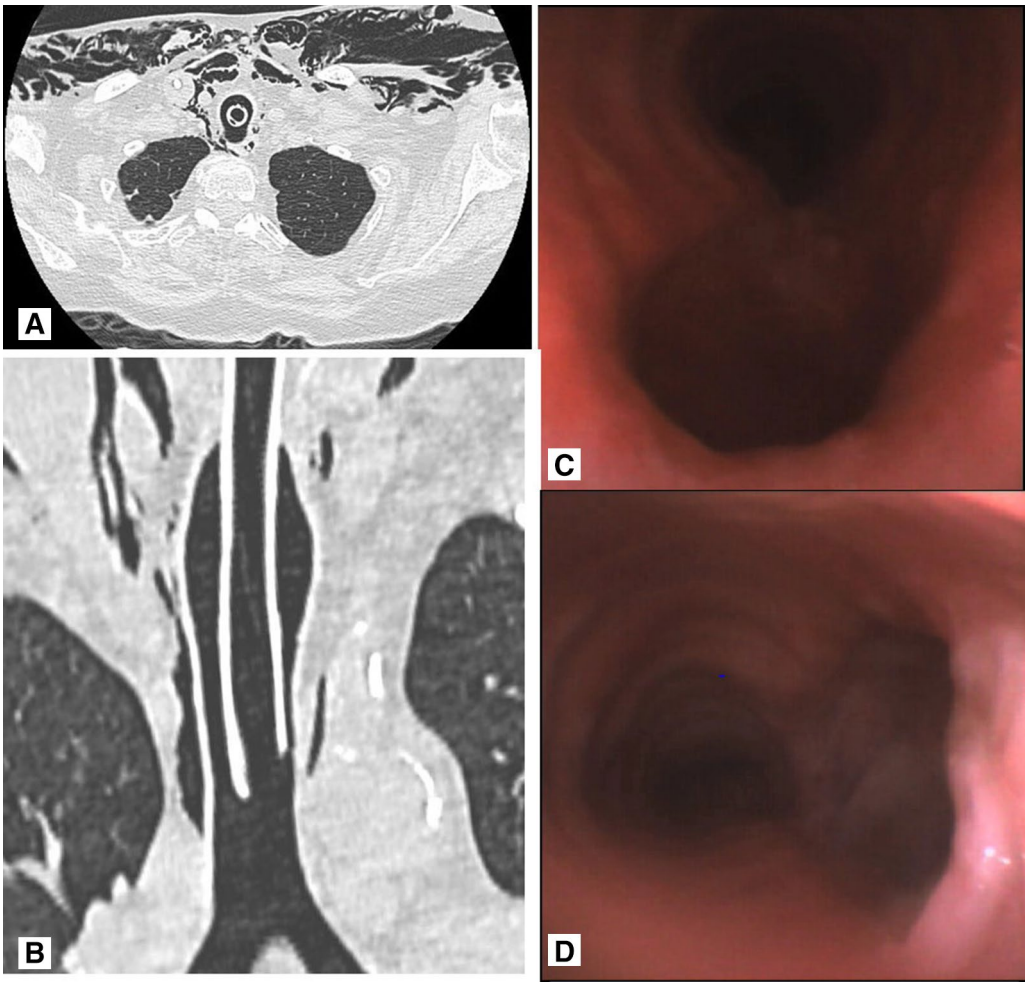

Fig. 1 Computed tomography (MDCT). **a** Axial images of the chest showing airfilled tracheal diverticulum located at the right posterior paratracheal area adjacent to the esophageal lumen in the mediastinal window. **b** coronal images of the chest showing a lobulated multiseptated air-filled tracheal diverticulum located at the paratracheal area in the parankim window. **c** First broncoscopy, performed after intubation, that shows an area of laxity of the pars membranacea. **d** Second broncoscopy, performed 1 week later, that confirms the presence of a tracheal acquired diverticulum while excluding a tracheo-oesophageal fistula

Tracheal diverticulum is a type of paratracheal air cyst; its incidence is 2.4%. Congenital and acquired forms differ in structure (cartilage and smooth muscle in the congenital form, respiratory epitelium only in the acquired form), size and location (small and at the right paratracheal area in the congenital form, large and at any level in the acquired form).

Electronic supplementary material
The online version of this article (https://doi.org/10.1007/s00134-018-5316-4) contains supplementary material, which is available to authorized users.

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